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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,512	07/16/2003	Ji Hwan Keum	1670.1009	7512
49455	7590	09/27/2005	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			BUEKER, RICHARD R	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/619,512

Applicant(s)

KEUM ET AL.

Examiner

Richard Bueker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 32-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 6, 9-12, 18, 19, 20, 22-25 and 34 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shen (2,793,609) (Figs. 1-3), who discloses a heating crucible for a deposition apparatus comprising a main body having a space for receiving a coating material to be vaporized and a nozzle for discharging vapor onto a substrate intended to be coated, and an inner member such as a baffle board which has one or more openings formed around its edge in the same manner as illustrated in applicants' Fig. 4, for example.

The claim 1 limitation of "which receives an organic compound" is a recitation of intended use of the claimed apparatus and the present apparatus claims are not limited to use with any one particular type of coating material. The apparatus of Shen has an inherent capability of being used with an organic compound of the type recited in applicants' recitation of intended use. Regarding the newly added limitations to claims 1

Claims 3, 5, 7, 8, 13, 16, 17, 20, 32 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Spahn (6,237,529). Shen

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doesn't discuss details of how his baffle board can be supported in the apparatus.

Spahn (Figs. 1, 2, 7 and 8, for example), however, teaches that a fixing portion that extends upward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Shen with a fixing portion that extends upward because Spahn teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner. Regarding claims 7, 8, 16 and 17, Spahn (see figs. 5 and 8 and col. 6, line 53 to col. 8, line 48) teaches that the sizes and relative locations of the nozzle, baffle plate and crucible are important results-effective variables, and for that reason it would have been obvious to engage in routine experimentation to choose effective values for these apparatus dimensions in the apparatus of Shen. Regarding claims 32 and 33, it would have been obvious to one skilled in the art to use the heating crucible of Shen to deposit a layer of an organic electroluminescent (OEL) material on a substrate to be coated because Spahn (col. 1, line 59 to col. 2, line 5 and col. 4, lines 51-64) teaches that it is desirable to form OEL layers by using an elongated crucible having a baffle for preventing undesirable lumps of OEL material from being formed on the substrate.

Claims 4, 5, 14 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Witzman (6,202,591). Shen doesn't discuss details of how his baffle board can be supported in the apparatus. Witzman (Fig. 2B), however, teaches that a fixing portion that extends downward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Shen with a fixing portion that extends downward because Witzman

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teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claims 5, 6, 15, 20 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Adams (3,466,424) (Figs. 3-6) or German DT 2612424 (Fig. 2). Adams and DT 2612424 each teaches the use of a baffle comprising an inner member having openings spaced at regular intervals along the edge (as recited in claims 6 and 15), and a width or length (i.e. cross-section) that is substantially the same as the material-holding space of the crucible (as recited in claim 26). It would have been prima facie obvious to provide the crucible of Shen with a baffle configured in the manner taught by Adams or DT 2612424, because these references teach that their baffles will desirably prevent lumps of material from escaping from the crucible, and will allow a vapor coating process to be performed successfully.

Claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Tiedje (5,944,903) (see Fig. 6) or Tanabe (2001/0008121) (Fig. 1). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Shen with a temperature-sensing unit because each of Tiedje and Tanabe teaches that a vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

Claims 1-3, 5-13, 15-20, 22-25 and 32-34 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Spahn (6,237,529). Spahn (Figs. 1-9) discloses a heating crucible for an OEL deposition apparatus comprising a crucible having a main body having a space for receiving OEL

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material to be vaporized, a nozzle orifice for directing vaporized OEL material onto a substrate to be coated, and an inner baffle member installed within the main body having one or more openings formed around the edge of the inner baffle member. Also, each of Taguchi (see Figs. 1a and 1b, col. 2, lines 48-53 and col. 3, lines 35-41, for example) and Nakagiri (Figs. 1-3 and abstract) are cited of interest to show that an evaporation crucible orifice of the type disclosed by Spahn is recognized and known in the prior art as a nozzle. Therefore, Taguchi and Nakagiri provide evidence that one skilled in the art would consider the orifice of Spahn's apparatus to inherently or at least obviously be a nozzle.

Claims 4 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Spahn (6,237,529) in view of Witzman (6,202,591). Spahn doesn't disclose the use of a fixing member that extends downward from his baffle. Witzman (Fig. 2B), however, teaches that a fixing portion that extends downward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Spahn with a fixing portion that extends downward because Witzman teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Spahn (6,237,529) taken in view of Van Slyke (2003/0101937) (paragraph 53) or Tanabe (2001/0008121) (Fig. 1). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Spahn with a temperature-sensing unit because each of Van Slyke and Tanabe teaches that an OEL vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

Claims 5, 6, 15, 20 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Spahn (6,237,529) taken in view of Adams (3,466,424) (Figs. 3-6) or German DT 2612424 (Fig. 2). Adams and DT 2612424 each teaches the use of a baffle comprising an inner member having openings spaced at regular intervals along the edge (as recited in claims 6 and 15), and a width or length (i.e. cross-section) that is substantially the same as the material-holding space of the crucible (as recited in claim 26). It would have been prima facie obvious to provide the crucible of Spahn with a baffle configured in the manner taught by Adams or DT 2612424, because these references teach that their baffles will desirably prevent lumps of material from escaping from the crucible, and will allow a vapor coating process to be performed successfully.

Claims 1-7, 9-16, 18-20, 22-26 and 34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Witzman (6,202,591). Witzman's apparatus (see Fig. 2B) includes an opening surrounding (i.e. around) an internal baffle plate, wherein a transmission direction of the vapor through the opening is perpendicular to an upper wall of the main body.

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witzman (6,202,591). The particular dimensions of claims 8 and 17 would have been prima facie obvious in view of Witzman.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Witzman (6,202,591) in view of Tiedje (5,944,903) (see Fig. 6) or Tanabe (2001/0008121) (Fig. 1). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Witzman with a temperature-sensing unit because each of Tiedje and

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Tanabe teaches that a vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witzman (6,202,591) in view of Spahn (6,237,529). Regarding claims 32 and 33, it would have been obvious to one skilled in the art to use the heating crucible described by Witzman (Fig. 2B) to deposit a layer of an organic electroluminescent (OEL) material on a substrate to be coated because Spahn (col. 1, line 59 to col. 2, line 5 and col. 4, lines 51-64) teaches that it is desirable to form OEL layers by using an elongated crucible having a baffle for preventing undesirable lumps of OEL material from being formed on the substrate.

Applicants have argued that "neither Shen nor Spahn disclose each of the following features: (1) an upper wall of the main body in which the nozzle is defined, and (2) that the upper wall is perpendicular to a transmission direction of the organic compound when the organic compound is transmitted through the opening."

Regarding part (1) of the above argument, it is noted that the nozzle of both Shen and Spahn is defined in an upper wall of a main body, in the same manner as is shown in applicants' own Figs. 2 and 3, in applicants' Figs. 2 and 3, the nozzle is defined in a lid or cover of the crucible, and therefore it is clear that applicants intend the lid or cover to be part of the "main body" recited in the claims. The nozzles of both Shen and Spahn are therefore considered to be defined in an upper wall of the main body.

Regarding part (2) of the above argument, it is noted that the high temperature vapor in the container of Shen or Spahn flows in a plurality of directions at the same



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time. In the newly added claim limitation of "a transmission direction of the organic compound when the organic compound is transmitted through the opening", it is noted that the phrase the phrase "when the organic compound is transmitted through the opening" defines a time period. Fig. 3 of Shen identifies three different transmission directions, labeled 8, 9 and 10, that the vapor flows in all at the same time, said time being "when the organic compound is transmitted through the opening". The same is true of Spahn. Also, Fig. 3 of Shen includes a flat horizontal flange 14 (see also col. 2, line 25 of Shen) that is an upper wall of the main body as defined in applicants' claims. The flat horizontal upper wall 14 of Shen is perpendicular to the flow 8 or 10 of Shen, wherein the flows 8 and 10 occur "when the organic compound is transmitted through the opening" as recited in applicants' claims. The same applies to Spahn.

It is noted also that the in the claimed "one or more openings formed around an edge of the area that faces the nozzle" the claimed opening can be interpreted to mean the opening of the nozzle of Shen or Spahn, because the preposition "around" is defined by the dictionary to mean "near" (see part d of the attached dictionary definition: "d: NEAR <lives ~ Chicago>"). It is noted that the opening of the nozzle in Shen and Spahn is 'formed near an edge of the area that faces the nozzle' as claimed and the vapor transmission direction through the nozzle opening is perpendicular to an upper wall of the main body as claimed.

Also, if for argument's sake, the above arguments are not a correct interpretation of the added claim language, it is also noted that Witzman's apparatus includes an opening surrounding (i.e. around) the internal baffle plate, wherein a transmission

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direction of the vapor through the opening is perpendicular to an upper wall of the main body.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Bueker  
Primary Examiner  
Art Unit 1763